

Angkor Wat appears on Cambodia's flag (left).

Jungle of Secrets

Scientists uncover a hidden city near a temple called Angkor Wat.

BY JOHN MICKLOS, JR.

In the midst of Cambodia's steamy jungle looms a majestic medieval temple. Called Angkor Wat, the nearly 900-year-old structure was built in the capital of the Khmer Empire, a powerful civilization in Southeast Asia. Now the site receives more than two million visitors a year. But until recently, few were aware of something tucked in the forest beyond the temple—a hidden city.

MISSING METROPOLIS

The Khmer Empire thrived between the 9th and 15th centuries. Many people worshipped at the temple of Angkor Wat in the capital city of Angkor, which was about the size of New York City. Scientists believe that in the 14th and 15th centuries, droughts and other extreme natural disasters caused many

people to abandon the region and move south. Eventually thick forests grew over much of the area.

Built in the 12th century to honor a god, Angkor Wat was in continual use even after the capital city was abandoned. When a French explorer came across the temple in the 1800s, he spread word of its beauty, drawing visitors and archaeologists to the area. But while Angkor Wat had been studied extensively, little was known about what lay in parts of the jungle around the temple.

Scientists suspected that another, older city from the Khmer Empire called

TREE ROOTS GROW OVER RUINS IN A JUNGLE.

Mahendraparvata was hidden in the jungle, based on information they found in old texts. According to the writings, the city was established in A.D. 802 on a mountain and served as the Khmer Empire's capital before it moved to Angkor. People

had even hiked through the jungle and taken aerial photographs trying to locate the metropolis. They did come across temple ruins, but a city was never found.

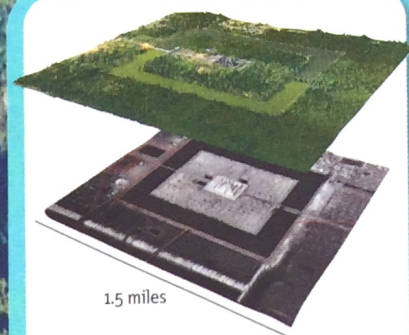
AIRBORNE DETECTIVES

In 2012 a team of scientists wanted to investigate about 140 square miles of

Red tree ants with beef and basil is a Cambodian delicacy.

In this nation, it's considered an insult to touch someone's head.

Cambodians celebrate the New Year in April.



ZOOMING IN ON ANGKOR WAT

Laser technology was used to create the black-and-white elevation map of the terrain surrounding Angkor Wat (bottom). Then scientists digitally added color and trees to produce a realistic model (top) of the area.

IN THE JUNGLE BEYOND THE REGAL TEMPLE OF ANGKOR WAT (LEFT) LIES A MYSTERIOUS CITY.



the region in search of the remains of Mahendraparvata and other parts of the Khmer Empire. A thick tangle of trees covering the land made exploring such a large area on foot extremely difficult. So instead the team took to the skies.

Crisscrossing over forest canopies in a helicopter, archaeologist Damian Evans used an instrument called LiDAR to scan the ground. LiDAR works by rapidly firing off pulses of laser light—up to 200,000 pulses a second. A sensor on the instrument measures how long it takes for each pulse to bounce back from the ground. If a set of laser beams has a shorter return time than the previous pulses sent, it could mean the beams have hit something elevated, such as a building. A longer return time could mean that the beams are bouncing off of

a low valley or deep riverbed. Using GPS technology, cartographers then combined all of the measurements to create a digital map of the terrain that revealed mountains, canals, roads, and ruins under the trees.

As the scientists analyzed the map, they noticed an area with a network of roads and canals built into a mountain. It appeared to match the description of Mahendraparvata found in the old texts. Evans and his team knew this had to be the hidden city. "It was a 'Eureka!' moment," Evans says. Using their map, the team set off to see the old settlement for themselves.

IT'S A JUNGLE OUT THERE

The archaeologists started their expedition north of Angkor Wat under the heat of a sizzling sun. They cut away tree leaves

blocking their path with machetes, waded knee-deep in bogs, and dodged dangerous land mines that had been left in the jungle after a war.

Finally they stumbled upon dozens of crumbled temples and evidence of roads and canals, all organized into city blocks. They had reached their destination, and it was indeed Mahendraparvata. And there's more to find—many of the city's artifacts are buried underground.

In the coming years, Evans and his team will continue to investigate the area, and it's likely that more discoveries will be made around Angkor Wat. But just as they did to uncover Mahendraparvata, the scientists will have their work cut out for them. After all, this jungle is very good at keeping secrets.